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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/642,373	08/21/2000	David William Matolak	39-MP-2828	8138

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EXAMINER

TRIEU, LAURENT L

ART UNIT	PAPER NUMBER
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2137

DATE MAILED: 05/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/642,373

Applicant(s)

MATOLAK, DAVID WILLIAM

Examiner

Laurent L Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 23 July 2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-13 have been examined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3-5 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Goedgebuer et al., hereafter referred to as Goedgebuer.

Regarding claim 1 – Goedgebuer discloses:

Delaying said digital data by at least one delay increment – “delay line means” (Column 3, line 61)

Providing a set of distortion encoding keys including at least one nonlinear transfer function – “non-linear means” (Column 3, line 61)

Operating on each of said time-sequential signal samples by one of said keys which is a nonlinear transfer function, to thereby generate, at any instant, a plurality of distorted samples of said signal – “the output signal of the delay line (Column 3, line 67)

Summing said plurality of distorted samples of said signal – “the output signal of the summing circuit controlling modulator means” (Column 4, lines 5-6)

Applying said distortion-encrypted signal to an input of said channel – “the sender device proposed by the invention can equally be used to send encrypted radio frequency signals” (Column 4, lines 12-13)

Extracting said distortion-encrypted signal from an output of said channel – “means for receiving said signal” (Column 4, line 17)

Decrypting said extracted distortion-encrypted signal – “a receiver which performs the decrypting” (Column 5, lines 9-10)

Regarding claim 3 - Goedgebuer discloses “tau as the time constant” of equation 1, (column 2, line 38) and “a delay line 4 which delays signal $I_{\text{sub.fb}}(t)$ by a time T (Column 5, line 25)

Regarding claim 4 - Goedgebuer discloses, “the feedback loop includes an interferometer to which is applied an electric current that corresponds to the delayed generated signal” (Column 3, lines 62-64) and a “a first photodiode 3 which converts $P(t)$ into an electrical signal $I_{\text{sub.fb}}(t)$, with a conversion factor $\eta_{\text{sub.1}}$ (Column 5, line 23-24)

Regarding claim 5 - Goedgebuer discloses, “a device for sending an encrypted signal, including a source for generating said signal and means for intensity modulating the signal” (Column 3, lines 58-60), “a device for receiving an encrypted signal” (Column 4,

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lines 16-17) and "the output signal of the subtractor circuit being the demodulated signal" (Column 4, lines 29-30)

Regarding claim 10 - Goedgebuer discloses using cos in equation 1 and sin in equation 2 of column 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goedgebuer in view of Scheller et al., hereafter referred to as Scheller.

Regarding claim 2 – While Goedgebuer teaches Goedgebuer teaches data encryption and transmission by deterministic chaos, it does not specifically disclose error correction as does Scheller, "In Golay encoding, which is used in the invention, a check word is created to forward error correct a code word" (Column 2, lines 14-16). It would have been obvious for one of ordinary skill in the art at the time of invention to use the forward error correction to "provide a high speed method of error-free transmission and reception of data over a noisy link" (Column 3, lines 21-23).

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4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goedgebuer in view of Nakamura, US Patent 4, 447, 672.

Regarding claim 6 – While Goedgebuer teaches data encryption and transmission by deterministic chaos, it does not disclose recording the encrypted signal onto a magnetic disk as does Nakamura, “Alternatively, the encrypted bit sequence may be supplied to a recording medium, as of a magnetic disk or drum, to be recorded thereon” (Column 4, lines 44-47). It would have been obvious to one of ordinary skill in the art to use a magnetic disk to record a signal as data backup.

Regarding claim 7 – Examiner takes Official Notice that a signal that is recorded onto a medium is played back at a time later than said recording. It would have been obvious to one of ordinary skill in the art to use the play back the recorded signal at a later time for retransmission purposes.

5. Claims 8, 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goedgebuer in view of Chennakeshu et al, hereafter referred to as Chennakeshu.

Regarding claims 8 and 9 – While Goedgebuer teaches data encryption and transmission by deterministic chaos, it does not disclose decryption using maximum

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likelihood sequence estimation or the Viterbi algorithm as done by Chennakeshu, "The apparent problem of needing a first signal s to decode a second signal i , and conversely needing the second signal i to decode the first signals, can also be solved using the Viterbi algorithm, also known as Maximum Likelihood Sequence Estimation (MLSE)" (Column 10, lines 64+). It would have been obvious for one of ordinary skill in the art at the time of invention to use the Viterbi Algorithm or MLSE to improve decoding between signals.

Regarding claims 11 and 12 – Chennakeshu discloses, "the demodulators 411, 412 can include various forms of equalization, including linear, decision feedback, MLSE" (Column 6, lines 1-3)

Regarding claim 13 - Chennakeshu discloses, "to determine a separate estimate for the first signal s in association with each assumption for the second signal i ..." (Column 11, lines 1-15).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurent L Trieu whose telephone number is 703-305-0712. The examiner can normally be reached on M-F 7AM-4PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Morse can be reached on 703-308-4789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLT
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19 April 2004


GREGORY MORSE
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